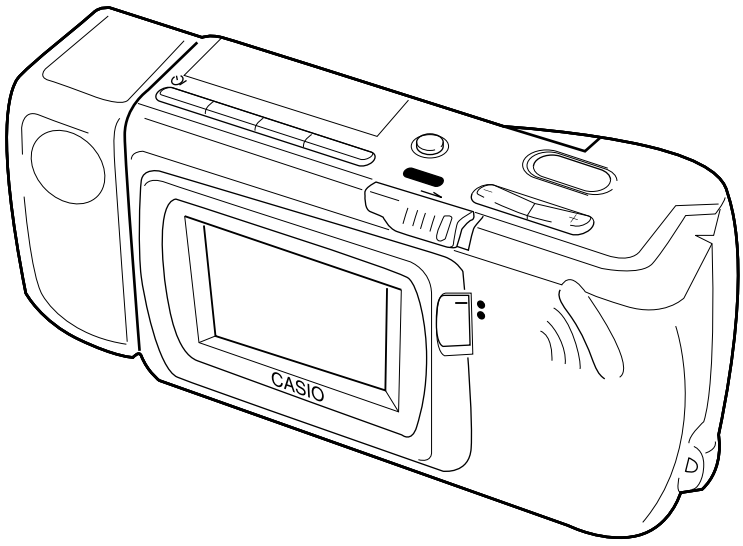
SERVICE MANUAL & PARTS LIST (without price)

QV-100 (B) (KX-725B)

(For NTSC)

AUG. 1996



INDEX

CASIO®

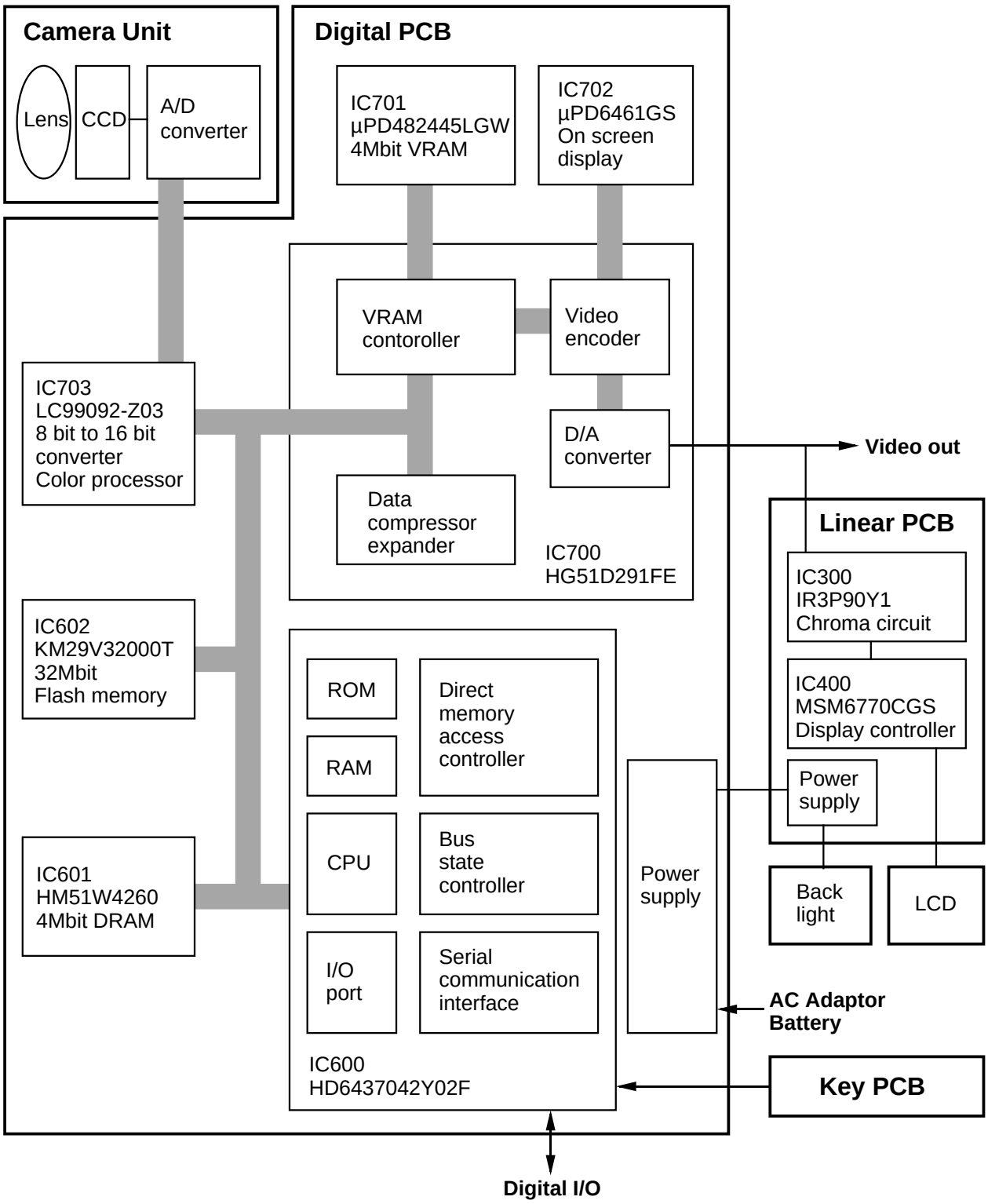
CONTENTS

SPECIFICATIONS 1
BLOCK DIAGRAM 2
FLOW DIAGRAM 3
POWER SUPPLY CIRCUIT OPERATION 5
TROUBLESHOOTING 8
DISASSEMBLY 9
PRINTED CIRCUIT BOARDS 11
EXPLODED VIEW 13
PARTS LIST 14
SCHEMATIC DIAGRAMS 21
WAVEFORMS 25

SPECIFICATIONS

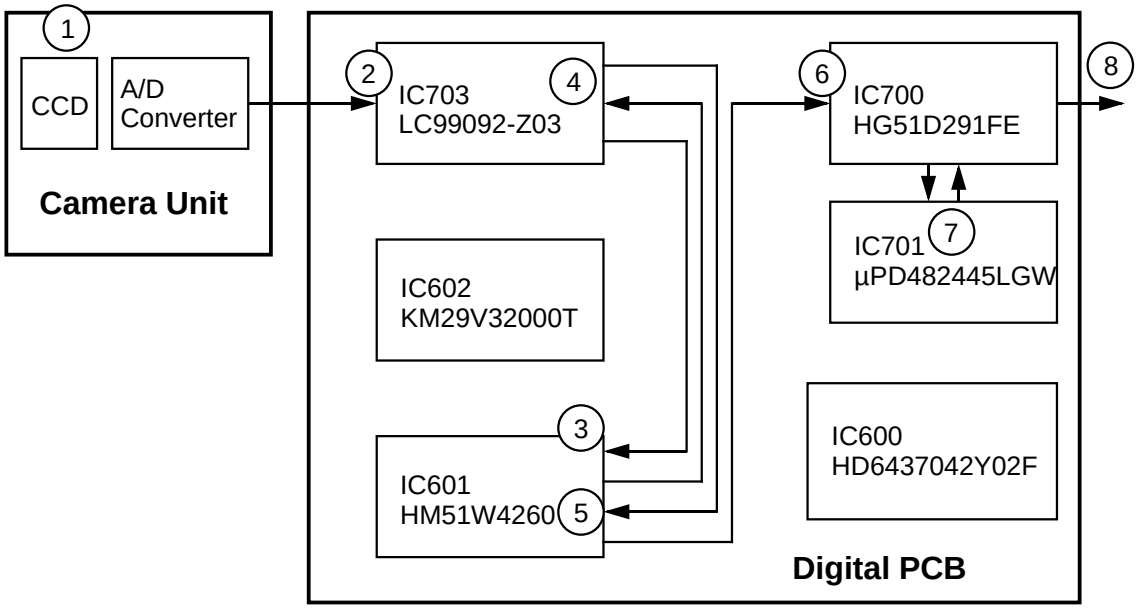
Item	Specification
1. Recording System	Digital (JPEG based)/Field recording
2. Video Signal System	NTSC
3. Recording Medium	Built-in 32-Mbit flash memory
4. Number of pages	FINE (VGA) : 64 (approximately 480-kbit compressed) NORMAL (Quarter-VGA) : 192 (approximately 160-kbit compressed)
5. Delete Functions	Single page; All pages (with page protect feature)
6. Imaging Device	1/4-inch CCD (Total Number of Pixels: 360,000)
7. Lens	Fixed focus with macro position; F2.8/f = 4.2 mm
8. Aperture	F2.8/F8 manual switching
9. Focal Length	F2.8/NORMAL : 50 cm to ~ F2.8/MACRO : 14 cm to 18 cm F8/NORMAL : 30 cm to ~ F8/MACRO : 11 cm to 27 cm (from lens protection filter)
10. Light Metering	TTL center point by photographic element
11. Exposure Metering	Aperture priority AE
12. Exposure Range	EV +5 to 18
13. Exposure Adjustment	-2 EV to +2 EV
14. Shutter System	Electronic
15. Shutter Speed	1/8 to 1/4000 second
16. White Balance	Automatic
17. Self-timer	10-second
18. Monitor	61,380-pixel 1.8-inch TFT low-glare color LCD; doubles as finder
19. Terminals	DIGITAL; VIDEO OUT; DC IN 6 V
20. Power Supply	Batteries (AA-size Alkaline or lithium batteries × 4)/AC Adaptor
21. Battery Life	LR6 (AM3) AA-size alkaline batteries: Approximately 150 minutes continuous operation (Play mode) Recording for about 96 images (one image per minute) FR6 AA-size lithium batteries: Approximately 240 minutes continuous operation (Play mode) Recording for about 180 images (one image per minute)
22. Dimensions	66(H) × 139(W) × 40(D)mm / 2.6" (H) × 5.5" (W) × 1.6" (D)
23. Weight	Approximately 180 g / 6.3 oz (excluding batteries)
24. Accessories	Wirst strap; soft case; special video cable; Alkaline batteries (LR6 × 4); cleaning cloth

BLOCK DIAGRAM



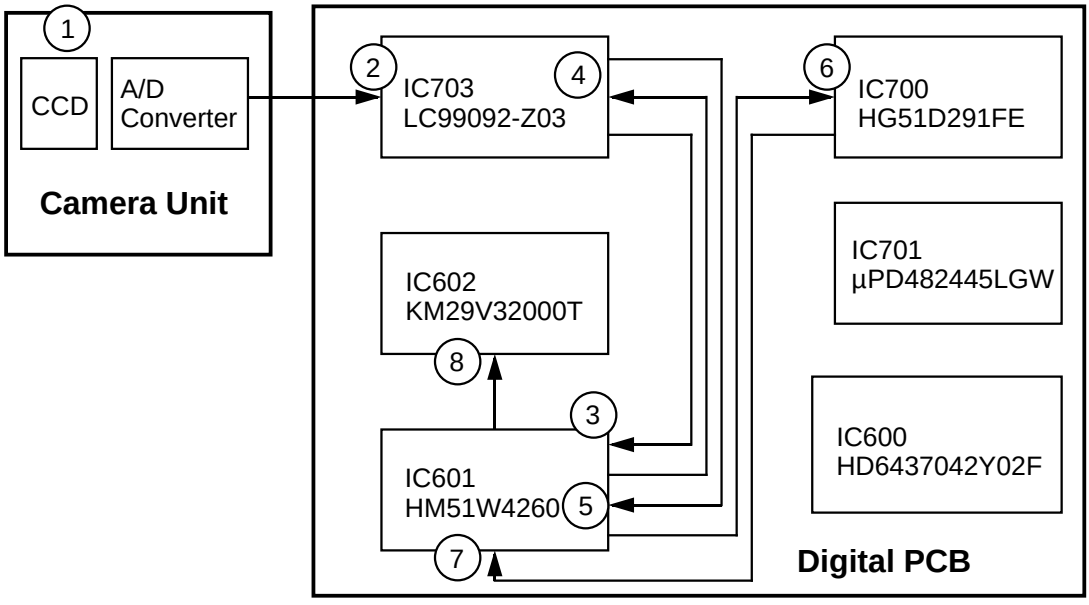
FLOW DIAGRAM

REC mode



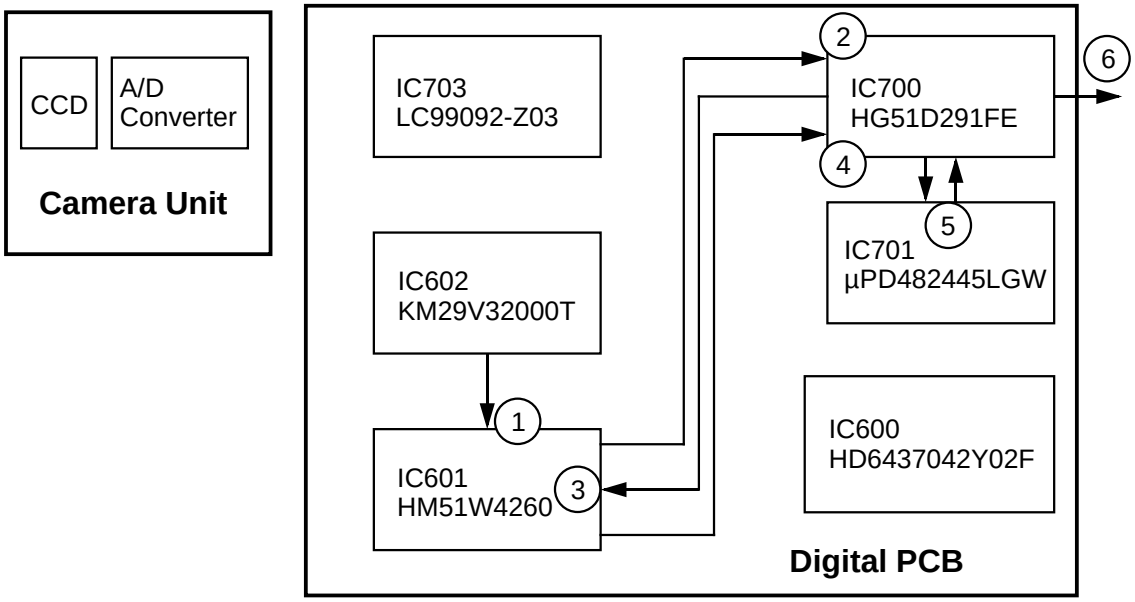
① Exposure and Analog to Digital conversion by Camera unit
② 8 to 16 bits conversion by IC703
③ Storage for work
④ Color processing by IC703: Ye,Cy, Gr → Y, By, Ry
⑤ Storage for work
⑥, ⑦ Video encode by IC 700 and IC701: Y, By, Ry → Video
⑧ Video out

When pressing the shutter button



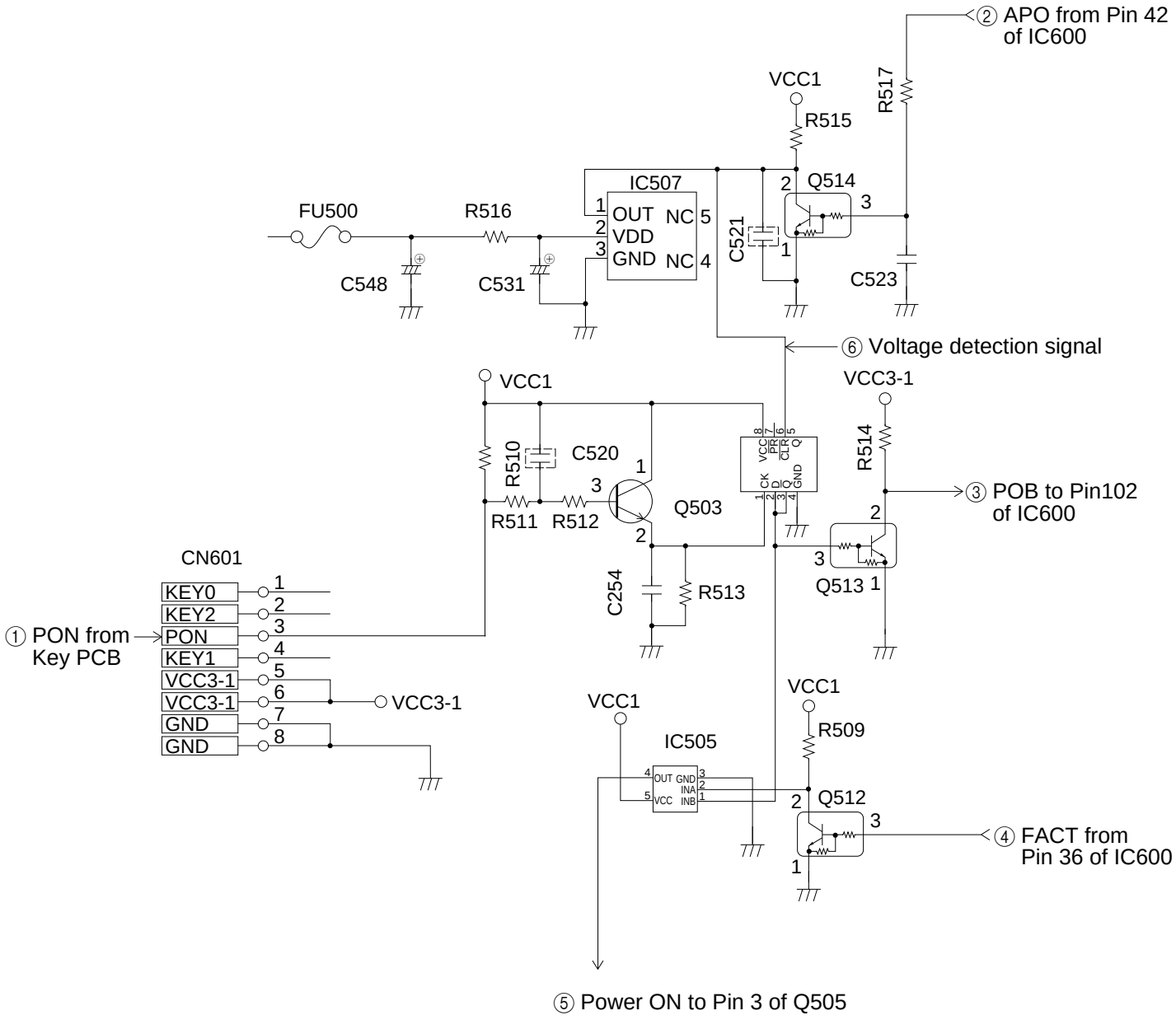
① Exposure and Analog to Digital conversion by Camera unit
② 8 to 16 bits conversion by IC703
③ Storage for work
④ Color processing by IC703: Ye, Cy, Gr → Y, By, Ry
⑤ Storage for work
⑥ Compression by IC700
⑦ Storage for work
⑧ Storage to Flash memory

PLAY mode

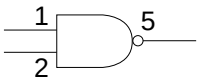
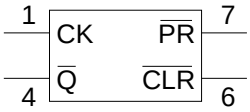


① Reading from Flash memory and storage for work
② Expansion by IC700
③ Storage for work
④, ⑤. Video encode by IC 700 and IC701: Y, By, Ry → Video
⑥ Video out

POWER SUPPLY CIRCUIT OPERATION



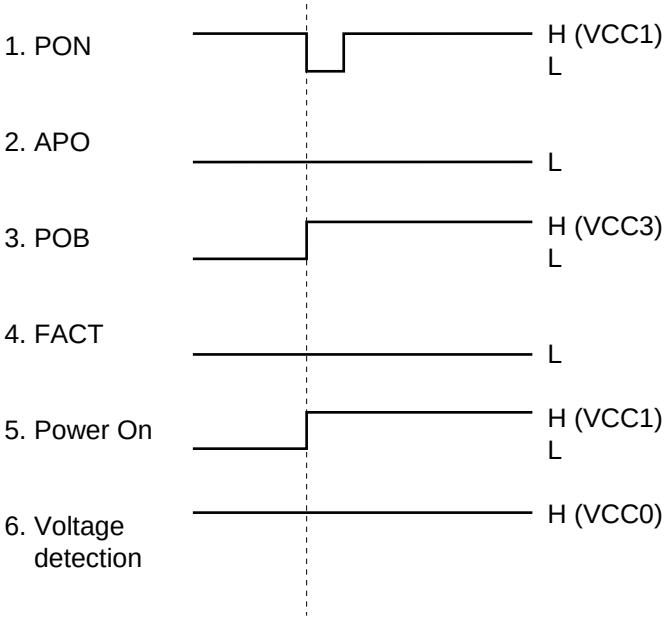
	Signal	Operation
1	PON	Power on/off signal (pulse) from SW900 on Key PCB
2	APO	Auto power off signal (pulse) from pin 42 of IC600
3	POB	Power on/off recognition signal to pin 102 of IC600 ON: H (VCC3) OFF: L (GND)
4	FACT	Forced power on signal from pin 36 of IC600 Forced ON: H (VCC3) OFF: L (GND) ex. While writing to flash memory
5	Power On	Power on/off signal to pin 3 of Q505 ON: H (VCC1) OFF: L (GND)
6	Voltage detection	Normal: H Low voltage: L

IC	Operation
IC505	NAND gate 
IC506	Flip-flop 
IC507	Voltage detector

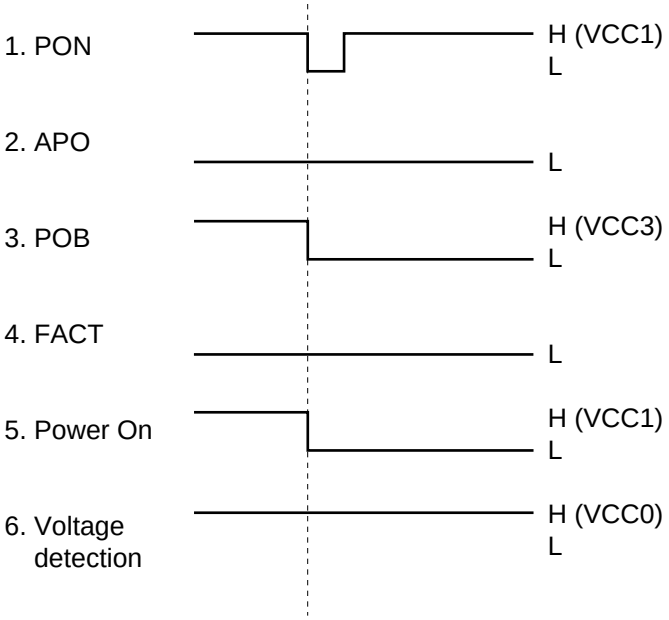
Pin 2 (VDD)	Pin 1 (OUT)
> 3.2 V	H
< 3.2 V	L

Time Chart

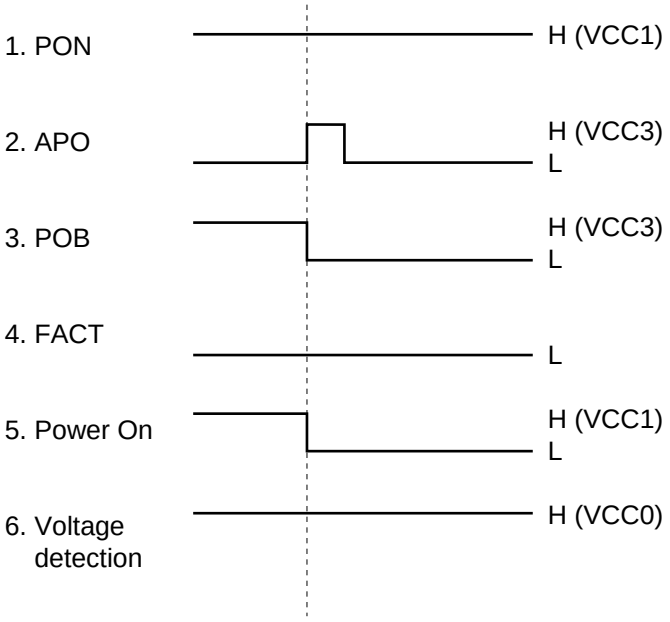
Power on



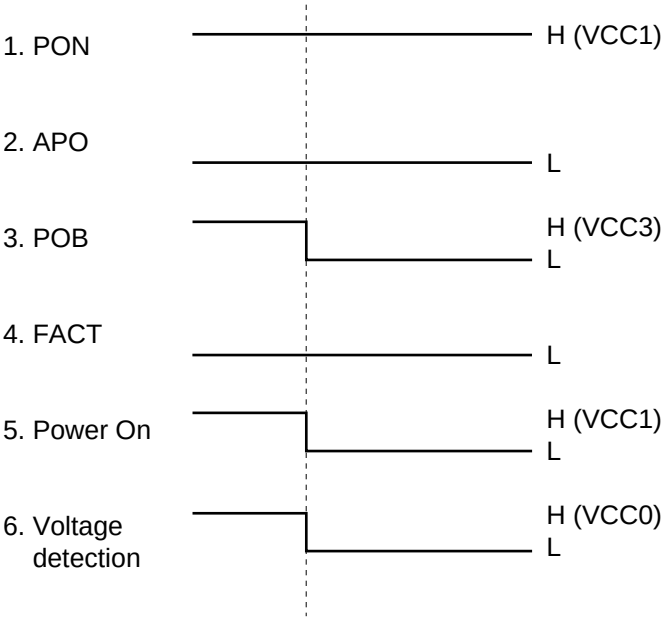
Power off



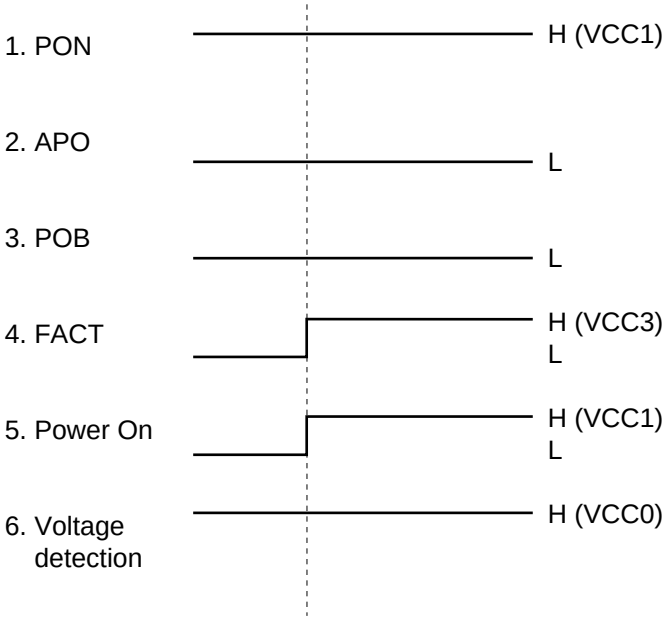
Power off by APO



Power off by low voltage detection



Forced power on by FACT



TROUBLESHOOTING

No Display

1. Check the fuse (FU500) on the digital PCB.
2. Check the fuse (FU100) on the linear PCB.
3. Check the jack (JK500) on the digital PCB.
4. Check the power switch (SW900) on the key PCB.
5. Check the flat cable between the digital and linear PCBs.
6. Check the back light.
7. Check the LCD.

No Display at Record Mode

1. Check the camera unit.

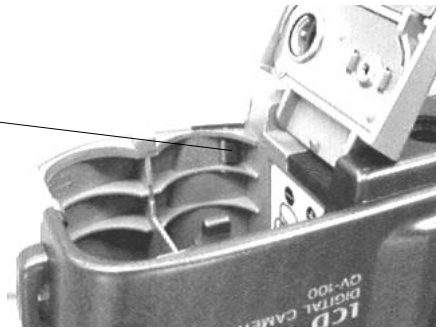
Defect of the Camera Unit

The camera unit must be replaced with whole unit when it is defective, because the precise adjustment is required when the individual parts of the camera unit are replaced, and it can be done only at our factory. (Except for replacing the outer case of the camera unit)

DISASSEMBLY

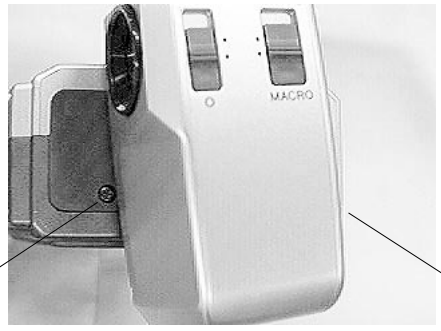
To disassemble the main unit

1. Open the battery cover, then unhook and remove the grip.

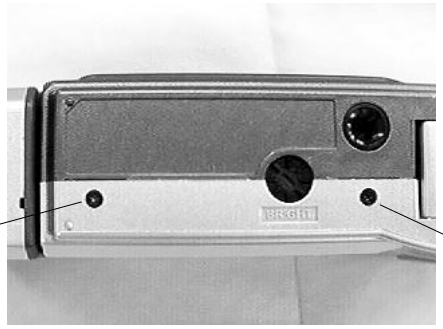


2. Remove the screw.

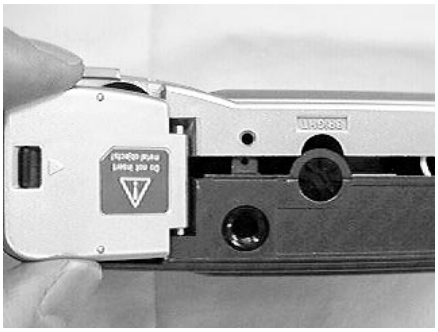
3. Rotate the camera unit then remove the two screws on the side of the unit.



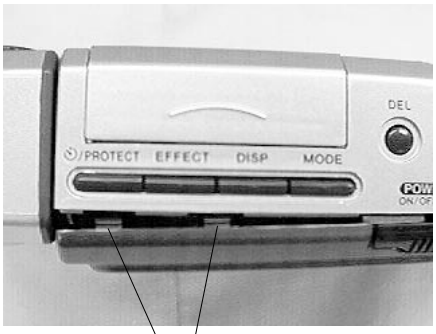
4. Remove the two screws on the bottom of the unit.



5. Remove the battery cover and the upper case at the bottom of the unit.

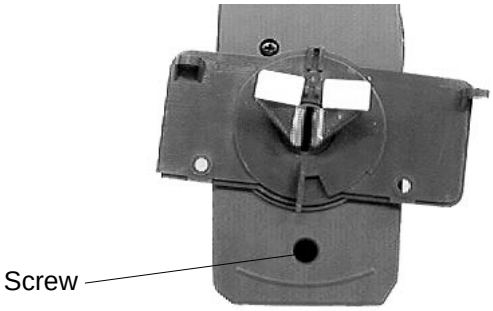


6. Remove the upper case at the top of the unit.



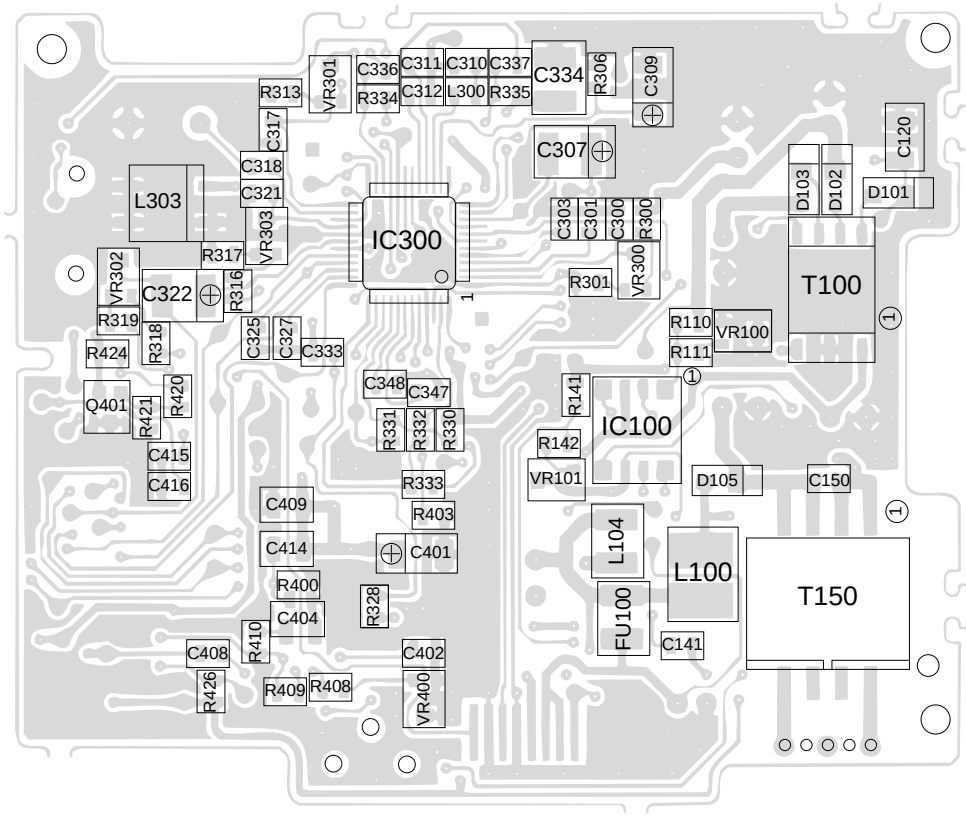
To disassemble the camera unit

Remove the screw and the camera case.

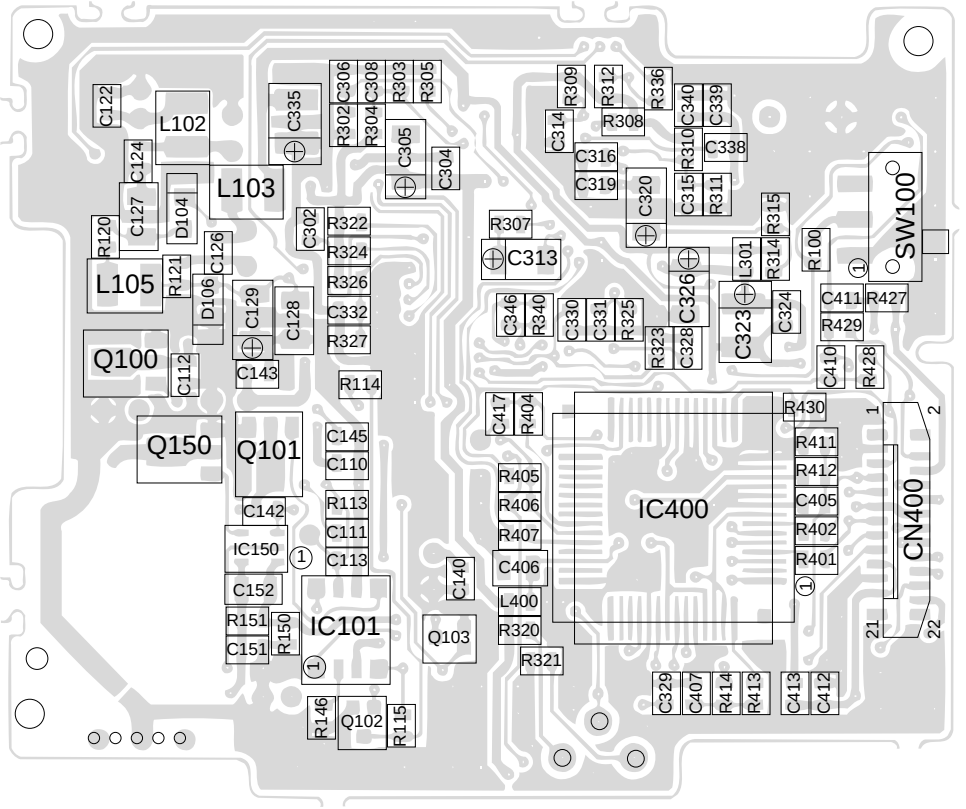


PRINTED CIRCUIT BOARDS

LINEAR

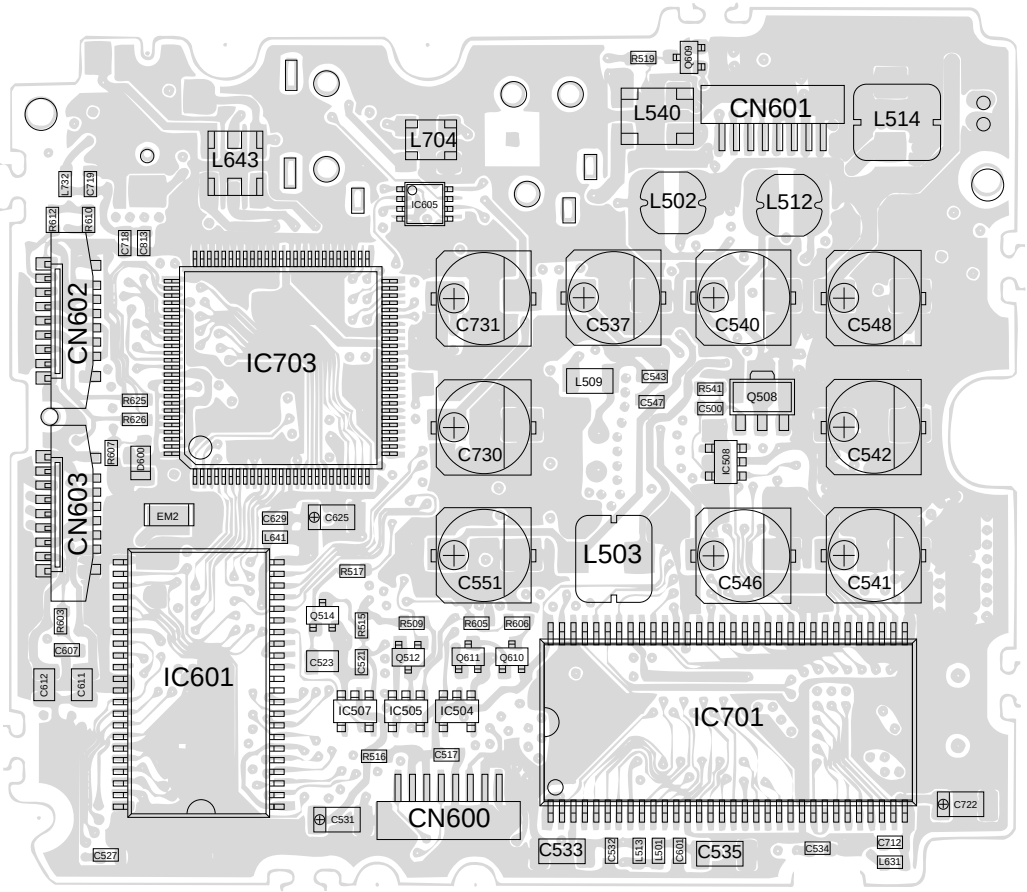


Top View

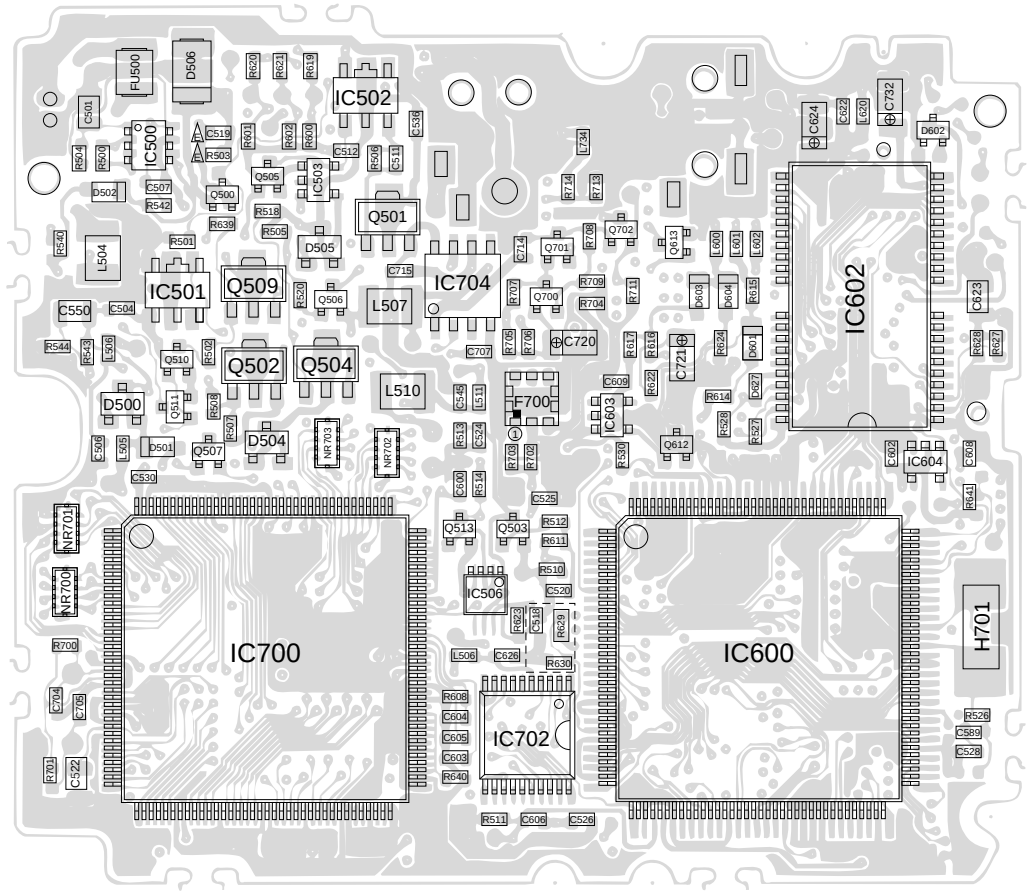


Bottom View

DIGITAL

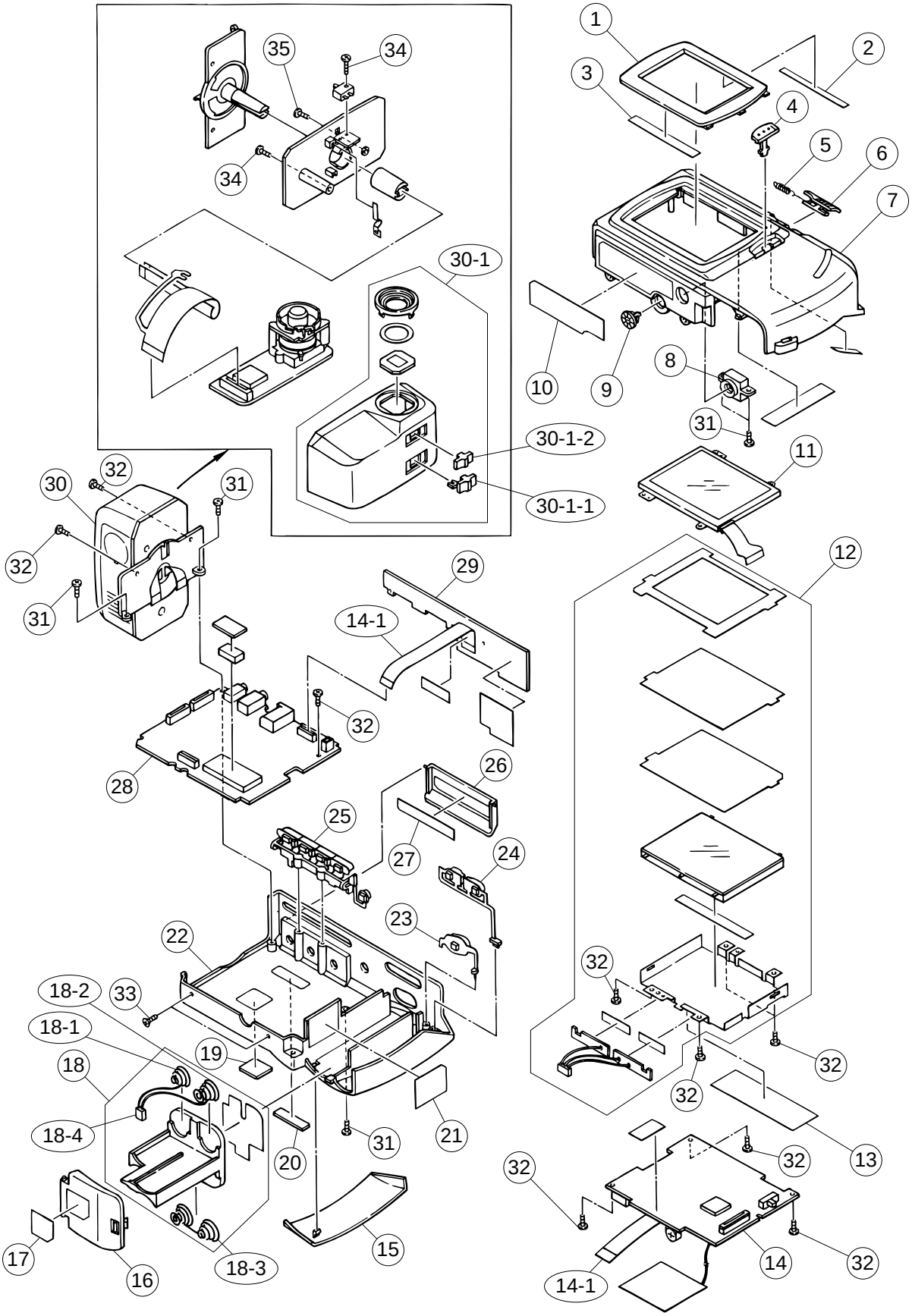


Top View



Bottom View

EXPLODED VIEW



PARTS LIST

LINEAR PCB ASS'Y

Item	Code No.	Parts Name	Specification	Q	R
	Diodes				
D101	7101 1194	Chip diode	MA111-(TX)	1	C
D102	2390 1379	Schottoky diode	MA729-(TX)	1	C
D103	2390 1379	Schottoky diode	MA729-(TX)	1	C
D104	7101 1194	Chip diode	MA111-(TX)	1	C
D105	2390 1379	Schottoky diode	MA729-(TX)	1	C
D106	2360 2359	Chip zener diode	MA8180-L(TX)	1	C
	Fuse				
FU100	3122 2772	Chip fuse	ICP-S0.7TN	1	B
	ICs				
IC100	2114 3654	IC	MB3800PNF-G-BND-EF	1	C
IC101	2114 3654	IC	MB3800PNF-G-BND-EF	1	C
IC150	2105 3990	IC	TC7S02F-TE85L	1	C
IC300	2114 3633	Linear IC	IR3P90Y-1	1	C
IC400	2015 0147	LSI	MSM6770CGS-2K-6004	1	C
	Transistors				
Q100	2253 0308	Chip transistor	2SD1119-R(TX)	1	B
Q101	2253 0308	Chip transistor	2SD1119-R(TX)	1	B
Q102	7911 0126	Digital transistor	DTC144EUAT106	1	B
Q103	7911 0126	Digital transistor	DTC144EUAT106	1	B
Q150	2253 0700	Chip transistor	2SK1485-T1	1	B
Q401	2251 0189	Chip transistor	2SB1218A-R(TX)	1	B
	Switch				
SW100	3412 1106	Slide switch	SSSS212-12	1	C
	Converter and Transformer				
T100	3065 0693	DC-DC converter	TTV6DD360M02	1	B
T150	3012 1176	Inverter transformer	ETJ-09K002AM	1	B
	Variable resistor				
VR304	2775 0644	Semi-fixed resistor	H0614D-10KB	1	C

Notes: Q – Quantity used per unit
R – Rank

DIGITAL PCB ASS'Y

Item	Code No.	Parts Name	Specification	Q	R
	Diodes				
D500	2390 2268	Chip diode	MA727-(TX)	1	C
D501	2390 1379	Schottoky diode	MA729-(TX)	1	C
D502	2390 1379	Schottoky diode	MA729-(TX)	1	C
D504	2390 2261	Chip diode	MA720-(TX)	1	C
D505	2390 2261	Chip diode	MA720-(TX)	1	C
D506	2390 1421	Chip schottoky diode	MA738-(TX)	1	C
D600	7101 1194	Chip diode	MA111-(TX)	1	C
D601	2390 1379	Schottoky diode	MA729-(TX)	1	C
D602	2390 1470	Chip diode	MA143A-(TX)	1	C
D603	2390 1379	Schottoky diode	MA729-(TX)	1	C
D604	2360 2982	Chip zener diode	MA8075-M(TX)	1	C
	Fuse				
FU500	3632 0700	Chip fuse	F1206A1R25FW-TP	1	A
	ICs				
IC500	2114 5607	IC	TK11830MTL	1	C
IC501	2105 5985	IC	RH5RH353B-T1	1	C
IC502	2105 3969	IC	RH5RH503B-T1	1	C
IC503	2105 3689	IC	RN5RG50AA-TR	1	C
IC504	2105 3976	IC	RN5RL25AA-TR	1	C
IC505	2105 1407	CMOS-IC	TC7S00F-TE85L	1	C
IC506	2105 3269	L-MOS	TC7W74F-TE12L	1	C
IC507	2105 3983	IC	RN5VL32AA-TR	1	C
IC508	2105 5999	IC	XC6383F501MR	1	C
IC600	2012 5341	LSI	HD6437042Y02F	1	C
IC601	2012 4424	LSI	HM51W4260CLTT-7	1	C
IC602	2012 4340	LSI	KM29V32000T	1	C
	ICs				
IC603	2105 1414	CMOS-IC	TC7S04F-TE85L	1	C
IC604	2105 6006	IC	RN5VL30AA-TR	1	C
IC605	2105 5719	IC	TC7W32FU(TE12L)	1	C
IC700	2012 4417	LSI	HG51D291FE	1	C
IC701	2012 4354	LSI	µPD482445LGW	1	C
IC702	2012 4711	LSI	µPD6461GS-644-E1	1	C
IC703	2012 4431	LSI	LC99092-Z03	1	C
IC704	2105 5992	IC	MM1228XFR	1	C
	Jacks				
JK500	3501 8281	Jack	HEC0811-010010	1	C
JK600	3501 6538	Jack	HSJ1169-012010	1	C
JK700	3501 5439	Jack	HSJ1456-01-210	1	C
	Transistors				
Q500	2259 2205	Digital transistor	DTA114EUAT106	1	B
Q501	2253 0308	Chip transistor	2SD1119-R(TX)	1	B
Q502	2251 0847	Chip transistor	2SB1386-T100R	1	B
Q503	2251 0189	Chip transistor	2SB1218A-R(TX)	1	B
Q504	2390 2863	Chip FET	2SJ212-T1	1	B
Q505	7911 0126	Digital transistor	DTC144EUAT106	1	B
Q506	2251 0189	Chip transistor	2SB1218A-R(TX)	1	B
Q507	7911 0126	Digital transistor	DTC144EUAT106	1	B
Q508	2253 0308	Chip transistor	2SD1119-R(TX)	1	B
Q509	2251 0847	Chip transistor	2SB1386-T100R	1	B

Notes: Q – Quantity used per unit
R – Rank

Item	Code No.	Parts Name	Specification	Q	R
Q510	7911 0126	Digital transistor	DTC144EUAT106	1	B
Q511	7911 0126	Digital transistor	DTC144EUAT106	1	B
Q512	7911 0126	Digital transistor	DTC144EUAT106	1	B
Q513	7911 0126	Digital transistor	DTC144EUAT106	1	B
Q514	7911 0126	Digital transistor	DTC144EUAT106	1	B
Q609	7911 0126	Digital transistor	DTC144EUAT106	1	B
Q610	2259 2205	Digital transistor	DTA114EUAT106	1	B
Q611	7911 0126	Digital transistor	DTC144EUAT106	1	B
Q612	2254 0448	Chip FET	2SK1580-T1	1	B
Q613	2254 0448	Chip FET	2SK1580-T1	1	B
Q700	2253 0133	Chip transistor	2SD1819A-R(TX)	1	B
Q701	2251 0189	Chip transistor	2SB1218A-R(TX)	1	B
Q702	2253 0133	Chip transistor	2SD1819A-R(TX)	1	B

Notes: Q – Quantity used per unit
R – Rank

KEY PCB ASS'Y

Item	Code No.	Parts Name	Specification	Q	R
	Switches				
SW900	3412 2002	Slide switch	SPVC2-1-T	1	B
SW901	3412 1995	Switch	SKQRAA-T	1	C
SW902	3412 1995	Switch	SKQRAA-T	1	C
SW903	3412 1995	Switch	SKQRAA-T	1	C
SW904	3412 1995	Switch	SKQRAA-T	1	C
SW905	3412 1995	Switch	SKQRAA-T	1	C
SW906	3412 1995	Switch	SKQRAA-T	1	C
SW907	3412 1995	Switch	SKQRAA-T	1	C
SW908	3412 1995	Switch	SKQRAA-T	1	C

Notes: Q – Quantity used per unit
R – Rank

MAIN COMPONENT

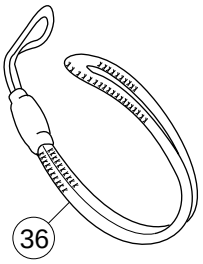
Item	Code No.	Parts Name	Specification	Q	R
1	6611 4510	Display frame K725AAA	R340023-1	1	X
2	6611 4710	Adhesive tape E-K725AAA	R340051-4	1	X
3	6611 4720	Adhesive tape F-K725AAA	R340051-5	1	X
4	6611 4400	REC/PLAY knob K725AAA	R340025-1	1	X
5	6611 4410	Spring K725AAA	R440045-1	1	X
6	6611 4420	Power switch knob K725AAA	R340033-1	1	X
7	6611 4430	Upper case K725AAA	R140003-1	1	X
8	6611 4390	Tripod hole K725AAA	R340024-1	1	C
9	6603 8924	C knob A-K310	K3741D-1	1	C
10	6611 4540	Rating plate K726BBA	R440053-2	1	X
11	2725 1246	LCD	COD18T1008RB	1	B
12	6611 4674	BL ass'y	R340042*1	1	B
13	6611 4700	Insulation plate K725AAA	R440056-1	1	X
14	6611 4675	Linear PCB ass'y	R240031*1	1	B
14-1	6609 7340	Flat cable A-K720	K411997-1	1	A
15	6611 4440	Grip K725AAA	R340035-1	1	X
16	6611 4666	Battery cover sub ass'y	R340044*1	1	C
17	6611 5771	Battery cover label B-K725	K440205A-7	1	X
18	6611 4665	Battery holder ass'y	R340043*1	1	X
18-1	6611 4320	Battery spring A-K725AAA	R440046-1	1	X
18-2	6611 4310	Battery spring B-K725AAA	R440049-1	1	X
18-3	6611 4300	Battery spring C-K725AAA	R440047-1	1	X
18-4	6611 4290	Battery wire K725AAA	R440044-1	1	X
19	6609 7440	Badge A-K720	K440063-1	1	X
20	6611 0460	Plate K724AAA	C441170-1	1	X
21	6611 0470	Battery label K724AAA	C441180-1	1	X
22	6611 4480	Lower case K725AAA	R140004-1	1	X
23	6611 4450	Shutter button K725AAA	R340026-1	1	X
24	6611 4460	(+/-) button K725AAA	R340027-1	1	X
25	6611 4470	MENU button K725AAA	R240019-1	1	X
26	6611 4530	Connector cover K725AAA	R340032-1	1	X
27	6610 2540	Cover label B-K720	K440064-2	1	X
28	6611 5764	Digital PCB ass'y	R240030*3	1	B
29	6611 4679	Key PCB ass'y	R340049*1	1	C
30	6611 4664	Camera unit	R240026*1	1	B
30-1	6611 4671	Camera case sub ass'y	R240024*1	1	X
30-1-1	6611 4200	Focus switch knob K725AAA	R340014-1	1	X
30-1-2	6611 4190	Aperture switch knob K725AAA	R340013-1	1	X
	6611 4940	VGA seal K726BAA	R440058-1	1	X
31	5112 0906	Screw	BT3 1.7X5 NI	5	C
32	5860 1477	Screw	BT3 1.7X3.5 Bk	10	C
33	5861 3111	Screw	PT3 1.7X5.5 Bk	2	C
34	5860 3465	Screw	BT3 1.7X5.5 Bk	2	C
35	5860 0763	Screw	BT3 1.7X4 Bk	1	C

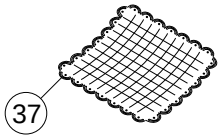
Notes: Q – Quantity used per unit
R – Rank

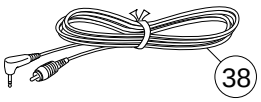
ACCESSORY

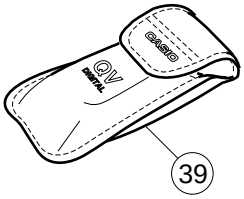
Item	Code No.	Parts Name	Specification	Q	R
36	5861 2110	Wrist strap	ST-K724	1	X
37	6608 9210	Cleaning cloth A-K613	K412004-1	1	X
38	1014 8773	Video cable	VC-K723-FC	1	X
39	1014 9298	Soft case	SC-725	1	X

Notes: Q – Quantity used per unit
R – Rank



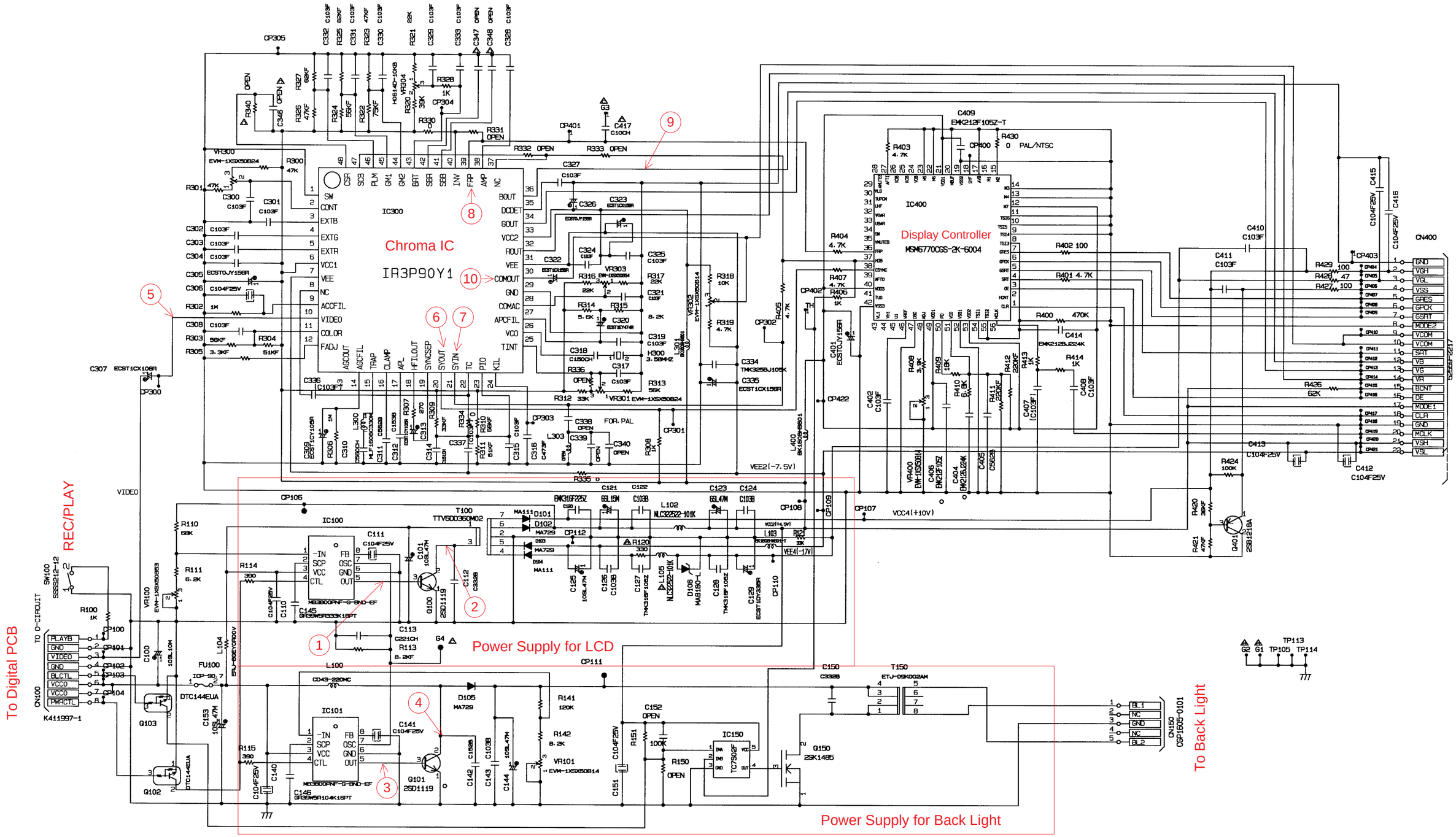






SCHEMATIC DIAGRAMS

LINEAR



DIGITAL

To Linear PCB

To Key PCB

DC in

Video Out

Digital I/O

To Camera Unit

CPU

HD6477042VF20-0004

IC600

Flash Memory

HN51W4260LTT-7

IC601

DRAM

KM29V32000AT

IC602

On Screen Display

OSDOSC

IC604

RN5VL30AA-TR

IC700

HG51D291FE

Data Expander
Data Compressor
Video Encoder

VRAM

UPD4B2445LGW

IC701

IC702

IC703

LC99092-Z03

8 to 16 bits Converter
Color processor

IC704

5 V Booster Circuit

5 V Power Supply Circuit

5 V

3.5 V

-10 V

20 V Power Supply Circuit

20 V

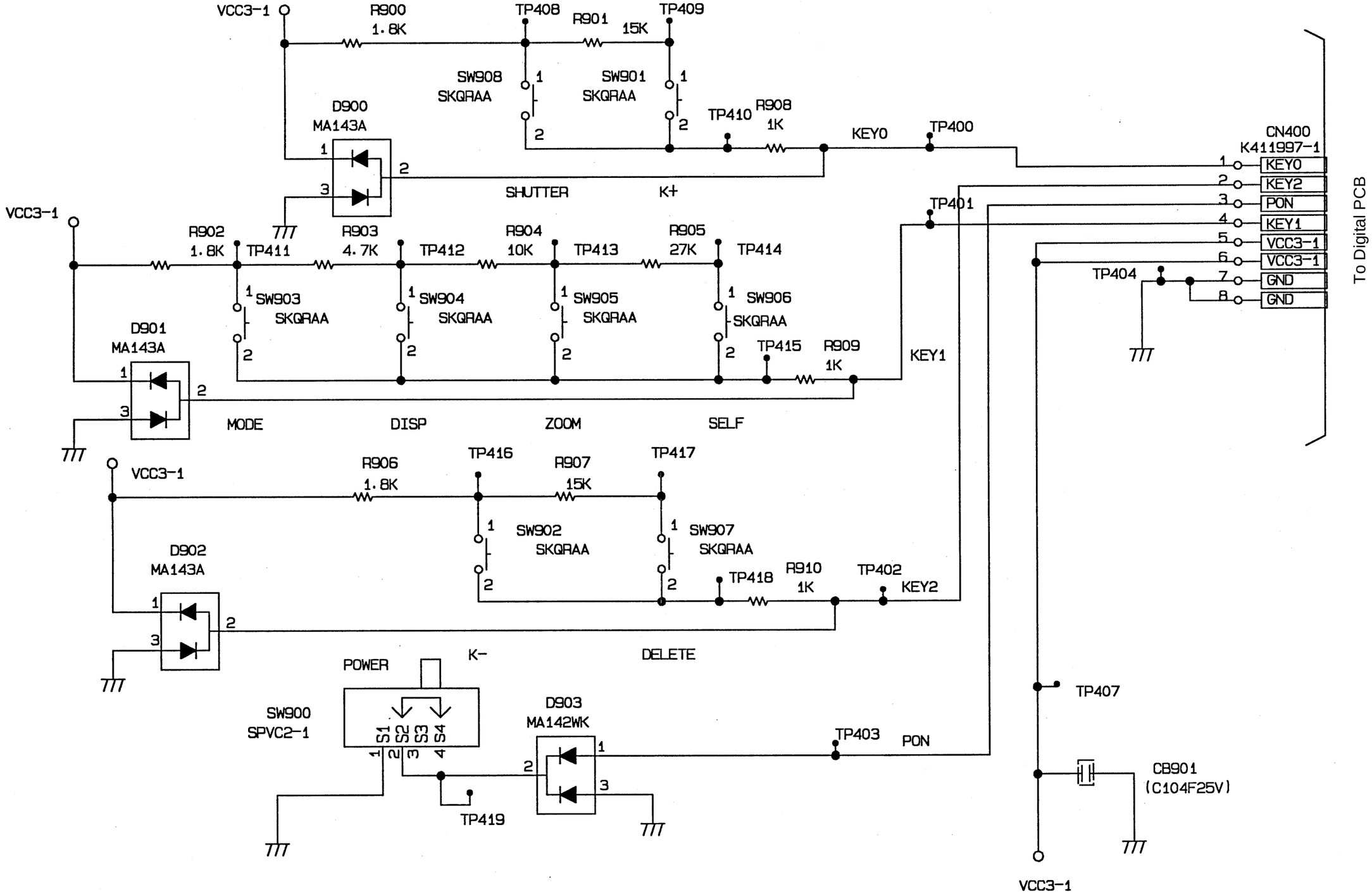
3.5 V Power Supply Circuit

-10 V Power Supply Circuit

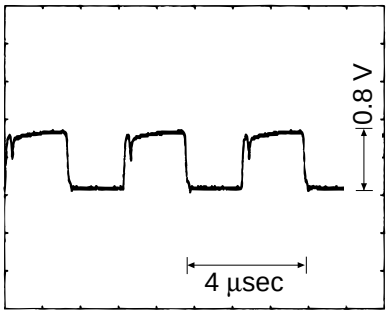
DIGITAL GND

SUB3

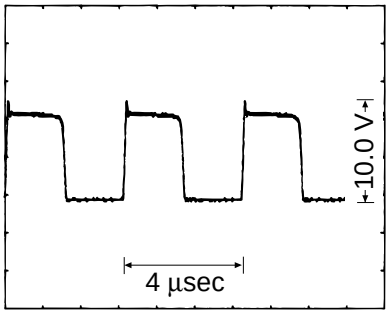
KEY


VCC3-1
R900
1.8K
TP408
R901
15K
TP409
SW908
SKQRAA
SW901
SKQRAA
D900
MA143A
TP410
R908
1K
KEY0
TP400
SHUTTER
K+
VCC3-1
R902
1.8K
TP411
R903
4.7K
TP412
R904
10K
TP413
R905
27K
TP414
SW903
SKQRAA
SW904
SKQRAA
SW905
SKQRAA
SW906
SKQRAA
D901
MA143A
TP415
R909
1K
KEY1
MODE
DISP
ZOOM
SELF
VCC3-1
R906
1.8K
TP416
R907
15K
TP417
SW902
SKQRAA
SW907
SKQRAA
D902
MA143A
TP418
R910
1K
TP402
KEY2
DELETE
POWER
K-
SW900
SPVC2-1
S1
S2
S3
S4
D903
MA142WK
TP403
PON
TP419
TP401
TP404
CN400
K411997-1
KEY0
KEY2
PON
KEY1
VCC3-1
VCC3-1
GND
GND
To Digital PCB
TP407
CB901
(C104F25V)
VCC3-1

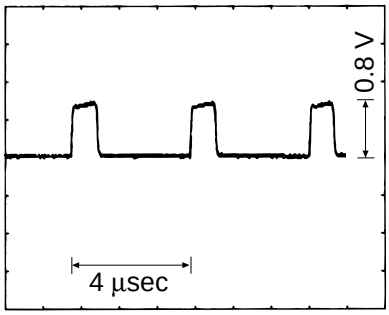
WAVEFORMS



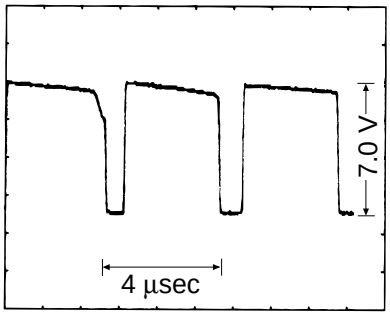
① IC100 pin 5



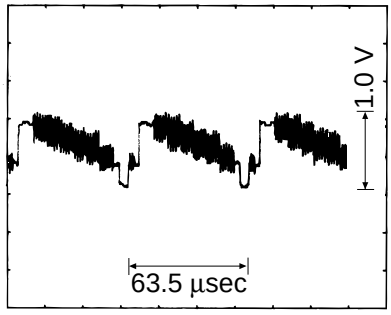
② Q100 collector



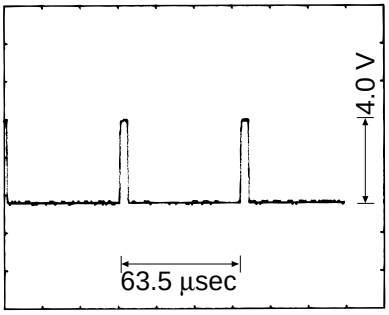
③ IC101 pin 5



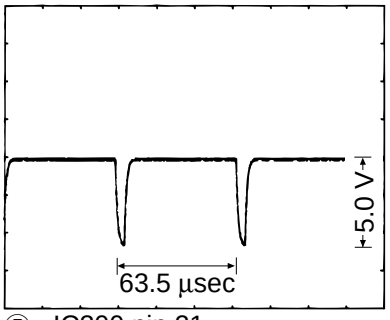
④ Q101 collector



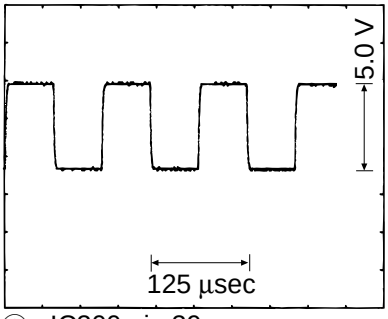
⑤ IC300 pin 10



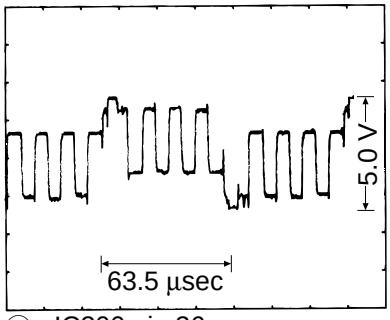
⑥ IC300 pin 20



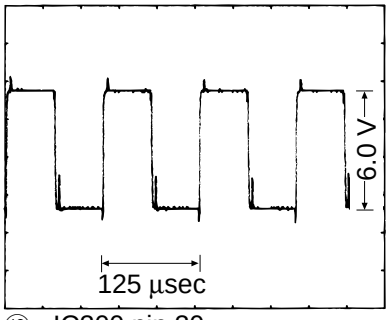
⑦ IC300 pin 21



⑧ IC300 pin 39



⑨ IC300 pin 36



⑩ IC300 pin 30

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